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(FILE 'HOME' ENTERED AT 12:57:09 ON 31 MAR 2003)

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 12:57:21 ON 31 MAR 2003

SEA (PROCHYMOS? OR CHYMOS?) AND (CAME? OR GOAT? OR SHEEP? OR LA

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15 FILE NLDB

L1 QUE (PROCHYMOS? OR CHYMOS?) AND (CAME? OR GOAT? OR SHEEP? OR LA

FILE 'USPATFULL, CABA, CAPLUS, BIOSIS, FSTA, MEDLINE, SCISEARCH, EMBASE, FROSTI, PASCAL, GENBANK, AGRICOLA, BIOTECHNO, LIFESCI, TOXCENTER, BIOTECHDS, DRUGU, USPAT2, BIOBUSINESS' ENTERED AT 13:01:15 ON 31 MAR 2003

L2 15077 S (PROCHYMOS? OR CHYMOS?)
L3 45 S L2 (S) CAMEL?
L4 26 DUP REM L3 (19 DUPLICATES REMOVED)
L5 1293 S L2 (S) (LAMB? OR SHEEP? OR GOAT? OR CAPRIN? OR PORCIN? OR PI
L6 323 S L5 (S) (ISOLAT? OR CLON? OR RECOMBIN?)
L7 190 DUP REM L6 (133 DUPLICATES REMOVED)
L8 60 S L7 (S) PRODUC?

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NEWS 1		Web Page URLs for STN Seminar Schedule - N. America
NEWS 2	Apr 08	"Ask CAS" for self-help around the clock
NEWS 3	Apr 09	BEILSTEIN: Reload and Implementation of a New Subject Area
NEWS 4	Apr 09	ZDB will be removed from STN
NEWS 5	Apr 19	US Patent Applications available in IFICDB, IFIPAT, and IFIUDB
NEWS 6	Apr 22	Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS
NEWS 7	Apr 22	BIOSIS Gene Names now available in TOXCENTER
NEWS 8	Apr 22	Federal Research in Progress (FEDRIP) now available
NEWS 9	Jun 03	New e-mail delivery for search results now available
NEWS 10	Jun 10	MEDLINE Reload
NEWS 11	Jun 10	PCTFULL has been reloaded
NEWS 12	Jul 02	FOREGE no longer contains STANDARDS file segment
NEWS 13	Jul 22	USAN to be reloaded July 28, 2002; saved answer sets no longer valid
NEWS 14	Jul 29	Enhanced polymer searching in REGISTRY
NEWS 15	Jul 30	NETFIRST to be removed from STN
NEWS 16	Aug 08	CANCERLIT reload
NEWS 17	Aug 08	PHARMAMarketLetter(PHARMAML) - new on STN
NEWS 18	Aug 08	NTIS has been reloaded and enhanced
NEWS 19	Aug 19	Aquatic Toxicity Information Retrieval (AQUIRE) now available on STN
NEWS 20	Aug 19	IFIPAT, IFICDB, and IFIUDB have been reloaded
NEWS 21	Aug 19	The MEDLINE file segment of TOXCENTER has been reloaded
NEWS 22	Aug 26	Sequence searching in REGISTRY enhanced
NEWS 23	Sep 03	JAPIO has been reloaded and enhanced
NEWS 24	Sep 16	Experimental properties added to the REGISTRY file
NEWS 25	Sep 16	CA Section Thesaurus available in CAPLUS and CA
NEWS 26	Oct 01	CASREACT Enriched with Reactions from 1907 to 1985
NEWS 27	Oct 21	EVENTLINE has been reloaded
NEWS 28	Oct 24	BEILSTEIN adds new search fields
NEWS 29	Oct 24	Nutraceuticals International (NUTRACEUT) now available on STN
NEWS 30	Oct 25	MEDLINE SDI run of October 8, 2002
NEWS 31	Nov 18	DKILIT has been renamed APOLLIT
NEWS 32	Nov 25	More calculated properties added to REGISTRY
NEWS 33	Dec 02	TIBKAT will be removed from STN
NEWS 34	Dec 04	CSA files on STN
NEWS 35	Dec 17	PCTFULL now covers WP/PCT Applications from 1978 to date
NEWS 36	Dec 17	TOXCENTER enhanced with additional content
NEWS 37	Dec 17	Adis Clinical Trials Insight now available on STN
NEWS 38	Dec 30	ISMEC no longer available
NEWS 39	Jan 21	NUTRACEUT offering one free connect hour in February 2003
NEWS 40	Jan 21	PHARMAML offering one free connect hour in February 2003
NEWS 41	Jan 29	Simultaneous left and right truncation added to COMPENDEX, ENERGY, INSPEC
NEWS 42	Feb 13	CANCERLIT is no longer being updated
NEWS 43	Feb 24	METADEX enhancements
NEWS 44	Feb 24	PCTGEN now available on STN
NEWS 45	Feb 24	TEMA now available on STN
NEWS 46	Feb 26	NTIS now allows simultaneous left and right truncation
NEWS 47	Feb 26	PCTFULL now contains images
NEWS 48	Mar 04	SDI PACKAGE for monthly delivery of multifile SDI results
NEWS 49	Mar 19	APOLLIT offering free connect time in April 2003

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 NEWS 50  Mar 20  EVENTLINE will be removed from STN
 NEWS 51  Mar 24  PATDPAFULL now available on STN
 NEWS 52  Mar 24  Additional information for trade-named substances without
                  structures available in REGISTRY
 NEWS 53  Mar 24  Indexing from 1957 to 1966 added to records in CA/CAPLUS

 NEWS EXPRESS  January 6 CURRENT WINDOWS VERSION IS V6.01a,
               CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP),
               AND CURRENT DISCOVER FILE IS DATED 01 OCTOBER 2002
 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
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 NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
 NEWS WWW      CAS World Wide Web Site (general information)

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FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED
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INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS,
       BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT,
       CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE,
       DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 12:57:21 ON 31 MAR 2003

69 FILES IN THE FILE LIST IN STNINDEX

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=> s (prochymos? or chymos?) and (came? or goat? or sheep? or lamb? or porci? or
pig? or caprin? or buffa? or hors? or equid?)
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         266   FILE CAPLUS
           4   FILE CEABA-VTB
           1   FILE CONFSCI
           7   FILE DDFB
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         25   FILE DRUGU
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         18   FILE WPINDEX
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         15   FILE NLDB

  44 FILES HAVE ONE OR MORE ANSWERS,    69 FILES SEARCHED IN STNINDEX

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      I? OR PIG? OR CAPRIN? OR BUFFA? OR HORS? OR EQUID?)

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F40	2	PHIN
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F42	1	CONFSCI
F43	1	DRUGUPDATES
F44	1	NTIS

=> file f1-f20

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FULL ESTIMATED COST	3.85	4.06

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FILE 'BIOBUSINESS' ENTERED AT 13:01:15 ON 31 MAR 2003
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=> s (prochymos? or chymos?)
L2 15077 (PROCHYMOS? OR CHYMOS?)

=> s l2 (s) camel?
L3 45 L2 (S) CAMEL?

=> dup rem l3
DUPLICATE IS NOT AVAILABLE IN 'GENBANK'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
PROCESSING COMPLETED FOR L3
L4 26 DUP REM L3 (19 DUPLICATES REMOVED)

=> d ti l4 1-23

L4 ANSWER 1 OF 26 USPATFULL DUPLICATE 1
TI Method of producing non-bovine chymosin and use hereof

L4 ANSWER 2 OF 26 USPATFULL
TI Method of providing polypeptide preparations with reduced enzymatic side activities

L4 ANSWER 3 OF 26 USPATFULL
TI Cheese yield enhancing method

L4 ANSWER 4 OF 26 CAPLUS COPYRIGHT 2003 ACS
TI Recombinant production of non-bovine chymosin and use in milk coagulation for cheese manufacturing

L4 ANSWER 5 OF 26 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI Producing recombinant enzymes (specifically pre-**prochymosin**, **prochymosin** or **chymosin**), useful as milk coagulating compositions in cheese manufacturing based on milk from any animal species (e.g. deer, buffalo or **camel** species); **Camelus** dromedarius recombinant pre-**prochymosin**, **prochymosin**, **chymosin** or glucoamylase fusion protein production in Aspergillus niger var. awamori

L4 ANSWER 6 OF 26 FSTA COPYRIGHT 2003 IFIS
TI Separation and characterization of mares' milk .alpha..sub.s.sub.1-, .beta.-, .kappa.-caseins, .gamma.-casein-like, and proteose peptone component 5-like peptides.

L4 ANSWER 7 OF 26 USPATFULL
TI Novel resin materials and their use for recovering proteins or peptides

L4 ANSWER 8 OF 26 CAPLUS COPYRIGHT 2003 ACS
TI Novel resin materials and their use for recovering proteins or peptides

L4 ANSWER 9 OF 26 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI New modified chaperone protein having binding site for immature protein; e.g. pro-chymotrypsin, improves folding, transport and secretion when coexpressed with the protein

L4 ANSWER 10 OF 26 CABA COPYRIGHT 2003 CABI DUPLICATE 2
TI Extraction of camel rennet and its comparison with calf rennet extract.

L4 ANSWER 11 OF 26 FSTA COPYRIGHT 2003 IFIS
TI Extraction of camel rennet and its comparison with calf rennet extract.

L4 ANSWER 12 OF 26 CABA COPYRIGHT 2003 CABI DUPLICATE 3
TI Heat treatment of camel milk - Effects upon casein fraction.

L4 ANSWER 13 OF 26 CABA COPYRIGHT 2003 CABI
TI Purification and characterization of milk clotting enzymes from adult camel rennet.

L4 ANSWER 14 OF 26 CABA COPYRIGHT 2003 CABI DUPLICATE 4
TI Enzymatic coagulation of **camel** milk. A study using soluble and immobilized **chymosin**.

L4 ANSWER 15 OF 26 FROSTI COPYRIGHT 2003 LFRA
TI Enzymatic coagulation of **camel** milk. A study using soluble and immobilised **chymosin**.

L4 ANSWER 16 OF 26 CABA COPYRIGHT 2003 CABI DUPLICATE 5
TI Studies on **camel** milk casein micelles. Treatment with soluble and immobilized **chymosin**.

L4 ANSWER 17 OF 26 CABA COPYRIGHT 2003 CABI
TI Use of bovine calf rennet to coagulate raw camel milk.

L4 ANSWER 18 OF 26 FSTA COPYRIGHT 2003 IFIS
TI Studies on **camel** milk casein micelles. Treatment with soluble and immobilized **chymosin**.

L4 ANSWER 19 OF 26 FSTA COPYRIGHT 2003 IFIS
TI Use of bovine calf rennet to coagulate raw camel milk.

L4 ANSWER 20 OF 26 CABA COPYRIGHT 2003 CABI
TI Studies on camel casein micelles using soluble and immobilized enzymes: distribution of glyco- and nonglyco- kappa -casein.

L4 ANSWER 21 OF 26 CABA COPYRIGHT 2003 CABI
TI Studies on camels' milk coagulation using soluble and immobilized proteases.

L4 ANSWER 22 OF 26 GENBANK.RTM. COPYRIGHT 2003

TITLE (TI): **Camel** (**Camelus** dromedarius) **Chymosin** and Pepsin as Renneting Enzymes for **Camel** Milk
TITLE (TI): Direct Submission

L4 ANSWER 23 OF 26 GENBANK.RTM. COPYRIGHT 2003

TITLE (TI): **Camel** (**Camelus** dromedarius) **Chymosin** and Pepsin as Renneting Enzymes for

Camel Milk
TITLE (TI): Direct Submission

=> d ibib abs l4 2-5, 10, 13-14

L4 ANSWER 2 OF 26 USPATFULL
ACCESSION NUMBER: 2002:287582 USPATFULL
TITLE: Method of providing polypeptide preparations with reduced enzymatic side activities
INVENTOR(S): Harboe, Marianne, Lyngby, DENMARK

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002160445	A1	20021031
APPLICATION INFO.:	US 2001-779560	A1	20010209 (9)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Stanislaus Aksman, Hunton & Williams, Suite 1200, 1900 K Street, N.W., Washington, DC, 20006
NUMBER OF CLAIMS: 34
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Page(s)
LINE COUNT: 719
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method of providing polypeptide preparations having a reduced content of undesired enzymatic side activities, the method comprising subjecting a medium containing a desired polypeptide such as an enzyme, a pharmaceutically active or immunologically active polypeptide to a pH of less than 2 for a period of time that is required to inactivate the side activities whilst retaining the activity of the desired polypeptide. The method is useful for providing milk clotting enzyme products including rennets or coagulants based on chymosin or pepsin or microbial aspartic proteases e.g. derived from bacterial species and species of filamentous fungi.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 3 OF 26 USPATFULL
ACCESSION NUMBER: 2002:83129 USPATFULL
TITLE: Cheese yield enhancing method
INVENTOR(S): Kumazawa, Yoshiyuki, Kawasaki-shi, JAPAN
Sakamoto, Jiro, Kawasaki-shi, JAPAN
Kuraishi, Chiya, Kawasaki-shi, JAPAN
Nio, Noriki, Kawasaki-shi, JAPAN
Sakaguchi, Shoji, Kawasaki-shi, JAPAN
PATENT ASSIGNEE(S): AJINOMOTO CO., INC., Chuo-ku, JAPAN, 104-8315

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002043159	A1	20020418
APPLICATION INFO.:	US 2001-923358	A1	20010808 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 2000-263616	20000831

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC, FOURTH FLOOR, 1755 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA, 22202
NUMBER OF CLAIMS: 7
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Page(s)
LINE COUNT: 689

AB Herein is disclosed a cheese yield enhancing method in a cheese manufacturing method including a process of separating a cheese curd from a whey after a milk coagulating treatment of a material milk by a milk coagulating enzyme, said cheese yield enhancing method comprising steps of: adding/mixing a protein decomposing enzyme treated material of a milk whey protein (a partial hydrolysate of the milk whey protein) to the material milk; and subjecting a resulting mixture to the milk coagulating treatment by the milk coagulating enzyme, or said cheese yield enhancing method comprising steps of: adding/mixing a partial hydrolysate of a milk whey protein to the material milk; allowing transglutaminase to act on a resulting mixture; and subjecting the mixture to the milk coagulating treatment by the milk coagulating enzyme, whereby a yield of a cheese curd from a material milk, and therefore a yield of cheese may be enhanced and a cheese superior in quality may be manufactured.

L4 ANSWER 4 OF 26 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:353591 CAPLUS
DOCUMENT NUMBER: 136:365764
TITLE: Recombinant production of non-bovine chymosin and use in milk coagulation for cheese manufacturing
INVENTOR(S): Kappeler, Stefan; Farah, Zakaria; Budtz, Peter; Rahbek-Nielsen, Henrik; Van Den Brink, Johannes Maarten
PATENT ASSIGNEE(S): Chr. Hansen A/S, Den.; Eidgenoessische Technische Hochschule Zuerich
SOURCE: PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002036752	A2	20020510	WO 2001-DK731	20011106
WO 2002036752	A3	20020926		
W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002013838	A5	20020515	AU 2002-13838	20011106

PRIORITY APPLN. INFO.: US 2000-705917 A 20001106
WO 2001-DK731 W 20011106

AB A method of recombinantly producing a non-bovine pre-**prochymosin**, **prochymosin** or **chymosin** derived from ruminant species including deer species, buffalo species, antelope species, giraffe species, ovine species and caprine species; **Camelidae** species such as **Camelus** dromedarius; porcine species; or Equidae species, and use in milk coagulation for cheese manufg., is disclosed. The recombinant enzymes are used in milk coagulating compns. in cheese manufg. based on cow's milk and milk from any animal species which are used in cheese manufg. including camel's milk. In addn. to the potential of significantly improved chymosin prodn. cost-effectiveness, the provision of such non-bovine chymosin species at a com. level makes available chymosin products that are not only capable of clotting cow's milk at least as effectively as chymosin of bovine origin, but which, addnl., are capable of more effectively clotting milk from other animal

species including milk of the source species. Specifically, the invention has made it possible to provide, for the first time, **camel chymosin** in sufficient quantities to render an industrial, cost-effective and high quality prodn. of cheese based on **camel** 's milk possible, which, due to the scarcity of **camel** calf stomach material, has not hitherto been possible. Addnl., it has been discovered that **camel chymosin** has a high clotting activity on cow 's milk, which renders the enzyme useful for manufg. cheese based on cow's milk. It was a surprising finding of the present inventors that **camel chymosin** has a specific K-casein hydrolyzing activity (Phe-Met 105/106), i.e. C/P ratio as defined herein below, which is superior to that of bovine **chymosin**. A higher C/P ratio implies generally that the loss of protein during cheese manufg. due to nonspecific protein degrdn. is reduced, i.e. the yield of cheese is improved, and that the development of bitter taste in the cheese during maturation is reduced.

L4 ANSWER 5 OF 26 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 2002-17467 BIOTECHDS
TITLE: Producing recombinant enzymes (specifically pre-**prochymosin**, **prochymosin** or **chymosin**), useful as milk coagulating compositions in cheese manufacturing based on milk from any animal species (e.g. deer, buffalo or **camel** species); **Camelus** dromedarius recombinant pre-**prochymosin**, **prochymosin**, **chymosin** or glucoamylase fusion protein production in Aspergillus niger var. awamori
AUTHOR: KAPPELER S; FARAH Z; BUDTZ P; RAHBEK-NIELSEN H; VAN DEN BRINK J M
PATENT ASSIGNEE: CHR HANSEN AS; EIDGENOESSISCHE TECH HOCHSCHULE ZUERICH
PATENT INFO: WO 2002036752 10 May 2002
APPLICATION INFO: WO 2000-DK731 6 Nov 2000
PRIORITY INFO: US 2000-705917 6 Nov 2000
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2002-479760 [51]
AN 2002-17467 BIOTECHDS
AB DERWENT ABSTRACT:
NOVELTY - Producing a non-bovine (pre-)**prochymosin** or **chymosin** by cultivating a host cell that has been transfected with an expression vector comprising a coding sequence for the pre-**prochymosin**, **prochymosin** or **chymosin**.
DETAILED DESCRIPTION - The method comprises: (a) isolating or constructing a nucleic acid sequence coding for the (pre-) **prochymosin** or **chymosin**; (b) constructing an expression vector comprising the coding sequence, and operably linked to it, expression signals permitting the (pre-)**prochymosin** or **chymosin** to be expressed in a host cell; (c) transforming the host cell with the expression vector; (d) cultivating the transformed host cell so that the coding sequence is expressed; and (e) harvesting the pre-**prochymosin**, **prochymosin** or **chymosin** . INDEPENDENT CLAIMS are also included for the following: (1) a DNA construct capable of expressing non-bovine (pre-)**prochymosin** or **chymosin** comprising an expression vector having a nucleic acid sequence comprising a gene coding for the (pre-)**prochymosin** or **chymosin** and, operably linked to it, expression signals permitting the (pre-)**prochymosin** or **chymosin** to be expressed in a host cell; (2) a host cell transformed with the DNA construct; (3) compositions comprising: (a) a non-bovine (pre-) **prochymosin** or **chymosin** produced by the method above; or (b) a milk clotting composition comprising a milk clotting bovine enzyme selected from **prochymosin**, **chymosin** or pepsin, and a non-bovine milk clotting enzyme selected from **prochymosin** , **chymosin**, pepsin and a microbial aspartic protease; and (4)

methods of manufacturing cheese by: (a) adding a milk clotting amount of the composition of (3a) to milk and carrying out further manufacturing steps; or (b) adding a milk clotting amount of a non-bovine **prochymosin** or **chymosin** to the milk (which has a C/P ratio of 2-20) and carrying out further cheese manufacturing steps; or (c) adding a milk clotting amount of the composition of (3b) to the milk and carrying out further cheese manufacturing steps.

BIOTECHNOLOGY - Preferred Method: The (pre-)**prochymosin** or **chymosin**, or its fusion protein, is secreted over the host cell membrane. The yield of (pre-) **prochymosin** or **chymosin** milk clotting activity is at least 25% higher than the yield of bovine (pre-)**prochymosin** or **chymosin** milk clotting activity obtained when using, under identical conditions, the same vector, but with a coding sequence for bovine (pre-) **prochymosin** or **chymosin**. The method further comprises subjecting the harvested (pre-) **prochymosin** or **chymosin** to a deglycosylation treatment. The host cell is a cell expressing a deglycosylating enzyme. Specifically, the deglycosylating enzyme is endoH. In method (4), the milk is selected from cow's, **camel**'s, buffalo, goat's or sheep's milk, or a mixture of any of these milk types. Preferably, the milk is cow's milk. The yield of cheese obtained is higher than the yield obtained under identical manufacturing conditions using the same amount of bovine (pre-)**prochymosin** or **chymosin**. Preferred Construct: The construct comprises a sequence coding for a signal peptide for the (pre-)**prochymosin** or **chymosin**. The expression signal comprises a promoter not natively associated with the coding sequence. The coding sequence is derived from a mammalian species consisting of a ruminant species, a **Camelidae** species, a porcine species, an Equidae species or a primate species. The ruminant species comprises deer, buffalo, antelope, giraffe, ovine or caprine species. Preferably, the coding sequence is derived from **Camelus** dromedarius. The nucleic acid sequence codes for a fusion protein consisting of the (pre-)**prochymosin** or **chymosin**. Preferably, the fusion protein comprises glucoamylase or its fragment. The expression vector is derived from pGAMpR (as described in Ward et al., Bio/Technology. 8: 435-440, 1990) by substituting the coding sequence of that vector for bovine **prochymosin** with a coding sequence for the non-bovine (pre-)**prochymosin** or **chymosin**. Preferably, the expression vector is pGAMpR-C as contained in the Aspergillus niger var. awamori strains deposited under the accession numbers CBS 108915 and CBS 108916. The DNA construct also comprises a sequence coding for a deglycosylating enzyme, specifically endoH. The coding sequence is a naturally occurring coding sequence. The coding sequence is derived from a naturally occurring coding sequence by one or more silent nucleotide substitution(s). Preferred Host Cell: The host cell is A. niger var. awamori, specifically those strains deposited as CBS 108915 or CBS 108916. Preferred Composition: The (pre-) **prochymosin** or **chymosin** is in substantially deglycosylated form. Preferably, the (pre-)**prochymosin** or **chymosin** is derived from a **Camelidae** species, buffalo species, an ovine species or a caprine species. Preferably, the (pre-) **prochymosin** or **chymosin**, or the non-bovine milk clotting enzyme is derived from a C. dromedarius. The milk clotting activity ratio between the bovine and the non-bovine milk clotting enzyme is 1:99 to 99:1.

USE - The method is useful for producing recombinant enzymes (specifically pre-**prochymosin**, **prochymosin** or **chymosin**). These enzymes are useful in milk coagulating compositions, particularly in cheese manufacturing based on cow's milk and milk from any animal species (e.g. deer, buffalo, antelope, giraffe, ovine, caprine or **camel** species).

EXAMPLE - 2ml of precultures of transformants producing **chymosin** was used for inoculation of 20 ml medium followed by incubation (10 days, 37degreesC, 200 rpm). After incubation, the cultures were centrifuged and the clear supernatants were collected.

Chymosin activity was then determined. Among the tested transformants, the best producers were strains 21 and 28 (Centraalbureau voor Schimmelcultures (CBS) 108915 and 108916, respectively). It was confirmed, by colony PCR, that all transformants only contained the **Camelus** dromedarius gene in that no bands were observed in any of the transformants using the bovine primer set, but bands were generated in all of the transformants using the **camel chymosin** primer set. (57 pages)

L4 ANSWER 10 OF 26 CABA COPYRIGHT 2003 CABI DUPLICATE 2
ACCESSION NUMBER: 93:112908 CABA
DOCUMENT NUMBER: 930462280
TITLE: Extraction of camel rennet and its comparison with calf rennet extract
AUTHOR: Wangoh, J.; Farah, Z.; Puhan, Z.
CORPORATE SOURCE: Laboratorium fur Milchwissenschaft, Eidgenossische Technische Hochschule Zurich, ETH Zentrum, 8092 Zurich, Switzerland.
SOURCE: Milchwissenschaft, (1993) Vol. 48, No. 6, pp. 322-325. 17 ref.
ISSN: 0026-3788
DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: German
AB **Camel** rennet was extracted from **camel** calf abomasa by the method used for bovine rennet. The clotting activity was determined during extraction and activation. Both **camel** and cow abomasa extracts were fractionated, and the clotting activity of the fractions compared. **Camel** rennet coagulated **camel** milk slightly faster than cow milk, while calf rennet extract coagulated **camel** milk less readily than cow milk. The **chymosin** fraction of calf rennet showed weak activity on **camel** milk while the pepsin fraction coagulated it much more readily than cow milk. The first fraction of **camel** rennet coagulated cow and **camel** milk equally well, whereas the second fraction showed higher clotting activity with **camel** milk. It is concluded that the coagulation of **camel** milk by calf rennet is primarily due to the pepsin content of the calf rennet. The reported large variations in the ability of bovine rennet to coagulate **camel** milk can be explained by the differing pepsin content of the rennet used. **Camel** milk should therefore be coagulated with **camel** rennet or pepsin.

L4 ANSWER 13 OF 26 CABA COPYRIGHT 2003 CABI
ACCESSION NUMBER: 92:25272 CABA
DOCUMENT NUMBER: 920450822
TITLE: Purification and characterization of milk clotting enzymes from adult camel rennet
AUTHOR: El-Batawy, M. A.
CORPORATE SOURCE: Dairy Department, Faculty of Agriculture at Fayoum, Cairo University, Egypt.
SOURCE: Egyptian Journal of Dairy Science, (1991) Vol. 19, No. 2, pp. 315-325. 10 ref.
ISSN: 0301-8571
DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: Arabic
AB Adult **camel** rennet (ACR) was precipitated by 75% ammonium sulphate saturation. ACR extract contained approx. 94.9-95.2% pepsin and 5.1-4.8% **chymosin** for the eluates obtained on DEAE-cellulose and Sephadex G-100 resp. The optimum temp. for proteolytic activity (PA) for both fractions was 30 deg C. The same eluates showed 2 optimum pH for PA at pH 2 and 4. The purified fraction from DEAE-cellulose fractionation was more heat stable than that obtained using Sephadex G-100 when tested for either PA or for milk clotting activity. Michaelis-Menten constant (Km) and max. velocity (Vmax) were 0.31, 5.36 and 0.76, 1.42 for the eluates on

DEAE-cellulose and Sephadex G-100 resp. Milk clotting time was decreased by adding EDTA, MnSO4 CaCl2 and NaCl; and increased by adding CuSO4, ZnSO4, and AgNO3. PA was stimulated when CuSO4 and MnSO4 were added, while it was inhibited by adding EDTA, NaCl, CaCl2, ZnSO4 and AgNO3.

L4 ANSWER 14 OF 26 CABA COPYRIGHT 2003 CABI DUPLICATE 4
ACCESSION NUMBER: 88:100756 CABA
DOCUMENT NUMBER: 880429369
TITLE: Enzymatic coagulation of **camel** milk. A study using soluble and immobilized **chymosin**
AUTHOR: Mehaia, M. A.; Abou-El-Kheir, A. M.; Hablas, M. A.; Kheir, A. M. Abou-El
CORPORATE SOURCE: Dep. Food Sci., College Agric., King Saud Univ., Riyadh, Saudi Arabia.
SOURCE: Milchwissenschaft, (1988) Vol. 43, No. 7, pp. 438-441. 27 ref.
ISSN: 0026-3788
DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: German
AB Mechanisms of the primary and the secondary phase of enzymic coagulation of **camel** milk were studied using soluble and immobilized **chymosin**. Effects of temp., pH and calcium concn. on clotting activity were studied. The activation energy was calculated to be 10 and 32 kcal/mol for the primary and the secondary phases resp. When the pH was lowered from 6.6 to 5.6, about a 5-fold reduction in clotting times (CT) was obtained using soluble **chymosin** compared with a 4.5-fold reduction with immobilized **chymosin**. By increasing calcium concn. from 29 to 50 mM/litre, a 4-fold reduction in CT was observed at pH 6.6 and a 1.3-fold reduction at pH 5.6, using both forms of **chymosin**. Calcium appears to affect only the secondary phase and not the primary phase. It appears that the mechanism of enzymic **camel** milk coagulation is due primarily to a charge-neutralization process and conformation-change type of reaction occurring in the secondary phase. Lowering pH or increasing calcium would enhance this effect.

=> d his

(FILE 'HOME' ENTERED AT 12:57:09 ON 31 MAR 2003)

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 12:57:21 ON 31 MAR 2003
SEA (PROCHYMOS? OR CHYMOS?) AND (CAME? OR GOAT? OR SHEEP? OR LA

45	FILE AGRICOLA
2	FILE ANABSTR
3	FILE AQUASCI
23	FILE BIOBUSINESS
1	FILE BIOCOMMERCE
189	FILE BIOSIS
31	FILE BIOTECHABS
31	FILE BIOTECHDS
40	FILE BIOTECHNO
281	FILE CABA
4	FILE CANCERLIT
266	FILE CAPLUS
4	FILE CEABA-VTB
1	FILE CONFSCI
7	FILE DDFB
18	FILE DDFU

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                8    FILE DGENE
                7    FILE DRUGB
               25    FILE DRUGU
                1    FILE DRUGUPDATES
               76    FILE EMBASE
               22    FILE ESBIOBASE
                2    FILE FEDRIP
                4    FILE FOREGE
               74    FILE FROSTI
              157    FILE FSTA
               47    FILE GENBANK
               13    FILE IFIPAT
               15    FILE JICST-EPLUS
               34    FILE LIFESCI
              149    FILE MEDLINE
                1    FILE NTIS
               56    FILE PASCAL
                2    FILE PHIN
               16    FILE PROMT
              134    FILE SCISEARCH
               33    FILE TOXCENTER
             1272    FILE USPATFULL
               25    FILE USPAT2
                3    FILE VETB
                5    FILE VETU
               18    FILE WPIDS
               18    FILE WPINDEX
               15    FILE NLDB
L1               QUE (PROCHYMOS? OR CHYMOS?) AND (CAME? OR GOAT? OR SHEEP? OR LA
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     FILE 'USPATFULL, CABA, CAPLUS, BIOSIS, FSTA, MEDLINE, SCISEARCH, EMBASE,
     FROSTI, PASCAL, GENBANK, AGRICOLA, BIOTECHNO, LIFESCI, TOXCENTER,
     BIOTECHDS, DRUGU, USPAT2, BIOBUSINESS' ENTERED AT 13:01:15 ON 31 MAR 2003
L2          15077 S (PROCHYMOS? OR CHYMOS?)
L3             45 S L2 (S) CAMEL?
L4             26 DUP REM L3 (19 DUPLICATES REMOVED)

=> s l2 (s) (lamb? or sheep? or goat? or caprin? or porcin? or pig? or hors? or
equid? or buffa? or monke?)
   9 FILES SEARCHED...
  18 FILES SEARCHED...
L5          1293 L2 (S) (LAMB? OR SHEEP? OR GOAT? OR CAPRIN? OR PORCIN? OR PIG?
                 OR HORS? OR EQUID? OR BUFFA? OR MONKE?)

=> s l5 (s) (isolat? or clon? or recombin?)
  10 FILES SEARCHED...
  11 FILES SEARCHED...
L6           323 L5 (S) (ISOLAT? OR CLON? OR RECOMBIN?)

=> dup rem l6
DUPLICATE IS NOT AVAILABLE IN 'GENBANK'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
PROCESSING COMPLETED FOR L6
L7           190 DUP REM L6 (133 DUPLICATES REMOVED)

=> s l7 (s) produc?
   6 FILES SEARCHED...
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'L102 (S) PRODUC?'
  12 FILES SEARCHED...
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'L108 (S) PRODUC?'
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'L112 (S) PRODUC?'
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PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'L118 (S) PRODUC?'
L8 60 L7 (S) PRODUC?

=> d ti l8 1-60

L8 ANSWER 1 OF 60 USPATFULL
TI Process for making a cheese product using transglutaminase

L8 ANSWER 2 OF 60 USPATFULL
TI Method of producing non-bovine chymosin and use hereof

L8 ANSWER 3 OF 60 USPATFULL
TI Whey protein digestion products in cheese

L8 ANSWER 4 OF 60 USPATFULL
TI Controlled environment agreculture bioreactor for heterologous protein production

L8 ANSWER 5 OF 60 USPATFULL
TI Superantigen based methods and compositions for treatment of diseases

L8 ANSWER 6 OF 60 USPATFULL
TI Novel resin materials and their use for recovering proteins or peptides

L8 ANSWER 7 OF 60 USPATFULL
TI Process for making cheese

L8 ANSWER 8 OF 60 USPATFULL
TI Cheese curd made using transglutaminase and a non-rennet protease

L8 ANSWER 9 OF 60 USPATFULL
TI Process for incorporating whey proteins into cheese using transglutaminase

L8 ANSWER 10 OF 60 USPATFULL
TI Process for making cheese using transglutaminase and a non-rennet protease

L8 ANSWER 11 OF 60 USPATFULL
TI Expression plasmids for improved production of heterologous protein in bacteria

L8 ANSWER 12 OF 60 USPATFULL
TI Production of bioadhesive precursor protein analogs by genetically engineered organisms

L8 ANSWER 13 OF 60 USPATFULL
TI Bioadhesive precursor protein expression vectors

L8 ANSWER 14 OF 60 USPATFULL
TI Method of producing bioadhesive protein

L8 ANSWER 15 OF 60 USPATFULL
TI Escherichia coli expression vector encoding bioadhesive precursor protein analogs comprising three to twenty repeats of the decapeptide (Ala-Lys-Pro-Ser-Tyr-Pro-Pro-Thr-Tyr-Lys)

L8 ANSWER 16 OF 60 USPATFULL
TI Bioadhesive coding sequences

L8 ANSWER 17 OF 60 USPATFULL
TI Process for the production of a protein

L8 ANSWER 18 OF 60 USPATFULL

TI Expression plasmids for improved production of heterologous protein in bacteria

L8 ANSWER 19 OF 60 USPATFULL
TI Antigenic material for a chagas' disease detection system

L8 ANSWER 20 OF 60 CABA COPYRIGHT 2003 CABI
TI **Recombinant lamb chymosin** as an alternative coagulating enzyme in cheese **production**.

L8 ANSWER 21 OF 60 CABA COPYRIGHT 2003 CABI
TI Isolation of oligopeptides from the water-soluble extract of goat cheese and their identification by mass spectrometry.

L8 ANSWER 22 OF 60 CABA COPYRIGHT 2003 CABI
TI Influence of coagulants and starter bacteria on proteolysis and sensory quality of Gouda type cheese from buffalo milk.

L8 ANSWER 23 OF 60 CABA COPYRIGHT 2003 CABI
TI Hydrolysis of porcine beta -casein by bovine plasmin and bovine chymosin.

L8 ANSWER 24 OF 60 CABA COPYRIGHT 2003 CABI
TI Proteolytic activities of chymosin and porcine pepsin on buffalo, cow, and goat whole and beta -casein fractions.

L8 ANSWER 25 OF 60 CABA COPYRIGHT 2003 CABI
TI Hydrolysis of bovine and caprine caseins by rennet and plasmin in model systems.

L8 ANSWER 26 OF 60 CABA COPYRIGHT 2003 CABI
TI Contribution of coagulation to proteolysis and textural changes in Cheddar cheese during ripening.

L8 ANSWER 27 OF 60 CABA COPYRIGHT 2003 CABI
TI Production of transgenic sheep carrying the gene construction alpha S1-casein/chymosin.

L8 ANSWER 28 OF 60 CABA COPYRIGHT 2003 CABI
TI Recombinant chymosin.

L8 ANSWER 29 OF 60 CABA COPYRIGHT 2003 CABI
TI Comparative study by HPLC of caseinomacropeptides from cows', ewes' and goats' milk.

L8 ANSWER 30 OF 60 CABA COPYRIGHT 2003 CABI
TI Biochemistry.

L8 ANSWER 31 OF 60 CAPLUS COPYRIGHT 2003 ACS
TI Recombinant production of non-bovine chymosin and use in milk coagulation for cheese manufacturing

L8 ANSWER 32 OF 60 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Comparative modelling and analysis of amino acid substitutions suggests that the family of pregnancy-associated glycoproteins includes both active and inactive aspartic proteinases.

L8 ANSWER 33 OF 60 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Contractile activity of endothelin precursors in the isolated gallbladder of the guinea-pig: Presence of an endothelin-converting enzyme.

L8 ANSWER 34 OF 60 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI USE OF ARS18 BASED VECTORS TO INCREASE PROTEIN PRODUCTION IN YARROWIA-LIPOLYTICA.

L8 ANSWER 35 OF 60 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

TI INVESTIGATION OF THE INSTABILITY OF PLASMIDS DIRECTING THE EXPRESSION OF METHIONINE PROCHYMOSIN IN ESCHERICHIA-COLI.

L8 ANSWER 36 OF 60 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI MONKEY PEPSINOGENS AND PEPSINS 7. ANALYSIS OF THE ACTIVATION PROCESS AND DETERMINATION OF THE AMINO-TERMINAL 60-RESIDUE SEQUENCE OF JAPANESE MONKEY PROGASTRICSIN AND MOLECULAR EVOLUTION OF PEPSINOGENS.

L8 ANSWER 37 OF 60 FSTA COPYRIGHT 2003 IFIS
TI The effect of lysosomal proteinases and plasmin on the rennet coagulation properties of skim milk.

L8 ANSWER 38 OF 60 FSTA COPYRIGHT 2003 IFIS
TI **Recombinant lamb chymosin** as an alternative coagulating enzyme in cheese **production**.

L8 ANSWER 39 OF 60 FSTA COPYRIGHT 2003 IFIS
TI Isolation of oligopeptides from the water-soluble extract of goat cheese and their identification by mass spectrometry.

L8 ANSWER 40 OF 60 FSTA COPYRIGHT 2003 IFIS
TI Proteolytic activities of chymosin and porcine pepsin on buffalo, cow, and goat whole and .beta.-casein fractions.

L8 ANSWER 41 OF 60 FSTA COPYRIGHT 2003 IFIS
TI Hydrolysis of bovine and caprine caseins by rennet and plasmin in model systems.

L8 ANSWER 42 OF 60 FSTA COPYRIGHT 2003 IFIS
TI Contribution of coagulant to proteolysis and textural changes in Cheddar cheese during ripening.

L8 ANSWER 43 OF 60 FSTA COPYRIGHT 2003 IFIS
TI Kinetics of .kappa.-casein hydrolysis by different rennet and coagulant enzymes in murciano-granadina goat milk.

L8 ANSWER 44 OF 60 FSTA COPYRIGHT 2003 IFIS
TI Comparative study by HPLC of caseinomacropeptides from cows', ewes' and goats' milk.

L8 ANSWER 45 OF 60 FROSTI COPYRIGHT 2003 LFRA
TI Method of producing non-bovine chymosin and use hereof.

L8 ANSWER 46 OF 60 FROSTI COPYRIGHT 2003 LFRA
TI Isolation and characterisation of caseinmacropeptide from bovine, ovine, and caprine cheese whey.

L8 ANSWER 47 OF 60 FROSTI COPYRIGHT 2003 LFRA
TI Chymosin and phytase. Made by genetic engineering.. (No. 10 in a series of articles to promote a better understanding of the use of genetic engineering.)

L8 ANSWER 48 OF 60 FROSTI COPYRIGHT 2003 LFRA
TI Proteolytic specificity of chymosin on bovine alpha s1-casein.

L8 ANSWER 49 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI Expressing protein, by introducing chimeric nucleotide regulatory sequence, sequence encoding fusion protein, having sequence encoding protein, oleosin gene and sequence encoding termination region and producing protein;
vector-mediated gene transfer and expression in host cell for transgenic plant construction

L8 ANSWER 50 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI **Producing recombinant** enzymes (specifically pre-

prochymosin, prochymosin or **chymosin**), useful
as milk coagulating compositions in cheese manufacturing based on milk from any animal species (e.g. deer, **buffalo** or camel species);
Camelus dromedarius recombinant pre-prochymosin, prochymosin, chymosin or glucoamylase fusion protein production in Aspergillus niger var. awamori

L8 ANSWER 51 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI Application of the pCloDF13 bacteriocin-release-protein in the release of heterologous proteins by Escherichia coli: production of plant alpha-galactosidase;
Cyamopsis tetragonoloba recombinant signal peptide fusion protein preparation by vector plasmid expression in Escherichia coli and protein secretion

L8 ANSWER 52 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI Novel yeast products from fermentation processes;
flavor, pigment, functional food etc. production using e.g. Saccharomyces cerevisiae (conference paper)

L8 ANSWER 53 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI Improvement of germoplasms of enzyme-producing microbial strains by genetic engineering;
penicillin-amidase, glutaryl-7-aminocephalosporanic-acid-acylase, alpha-amylase, prochymosin, prourokinase, L-asparaginase, D-xylose-isomerase, aspartate-ammonia-lyase (conference paper)

L8 ANSWER 54 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI New autonomously replicating sequences active in Yarrowia lipolytica;
to improve transformation ability of plasmids used in protein production; DNA sequence

L8 ANSWER 55 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI Expression and properties of prochymosin derivatives containing extensions of various length in the pro-part;
young cattle pro-chymosin gene cloning in Escherichia coli

L8 ANSWER 56 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI Dual-origin plasmids containing an amplifiable ColE1 ori; temperature-controlled expression of cloned genes;
for stable high-level expression of recombinant genes in Escherichia coli

L8 ANSWER 57 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI Genetic improvement of rennet-producing strains of Streptomyces rimosus;
milk-clotting enzyme (conference abstract)

L8 ANSWER 58 OF 60 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
TI Production of protein in native form;
by immobilization of denatured protein and renaturation

L8 ANSWER 59 OF 60 DRUGU COPYRIGHT 2003 THOMSON DERWENT
TI Contractile Activity of Calcitonin Gene-Related Peptide on Pulmonary Tissues.

L8 ANSWER 60 OF 60 BIOBUSINESS COPYRIGHT 2003 BIOSIS
TI Acceptability of biotechnologies in the food industry.

=> d ibib abs 18 20 23 28 31 40 47

L8 ANSWER 20 OF 60 CABA COPYRIGHT 2003 CABI
ACCESSION NUMBER: 2002:14746 CABA
DOCUMENT NUMBER: 20013159605
TITLE: **Recombinant lamb**

chymosin as an alternative coagulating enzyme in cheese **production**

AUTHOR: Rogelj, I.; Perko, B.; Francky, A.; Penca, V.; Pungercar, J.

CORPORATE SOURCE: Zootechnical Department, Biotechnical Faculty, 1230 Domzale, Slovenia.

SOURCE: Journal of Dairy Science, (2001) Vol. 84, No. 5, pp. 1020-1026.
ISSN: 0022-0302

DOCUMENT TYPE: Journal

LANGUAGE: English

AB **Recombinant lamb chymosin** (RLC) was prepared and tested for its potential use in cheese **production**. The milk clotting activity and proteolytic activity of RLC were evaluated in comparison with commercial **recombinant** calf **chymosin** (RCC), cow rennet (CR) and microbial coagulant (MC). RLC, RCC and MC showed similar responses to pH, with a sharp increase of the coagulation time at pH 6.6-6.8 and decrease of curd firmness at the pH 6.5-6.6. In the case of CR, we observed two clear increases in the coagulation time and decreases in the curd firmness, at pH 6.4-6.5 and 6.6-6.8. Optimal clotting activity was obtained for RLC at 40 deg C, for both CR and RCC at 45 deg C, and for MC at 60 deg C. The temperature instability of RLC at temperatures above 45 deg C could constitute a benefit in making hard cheese varieties. The additon of CaCl2 to milk resulted in enhanced clotting activity of all coagulants, most prominently for CR. The proteolytic activity of RLC was significantly lower from that of CR but not significantly different from the activity of RCC. The lower proteolytic activity in the cheese made with RLC did not have negative effect on organoleptic properties. The overall quality of the cheese made with RLC was at least comparable to that of the cheese made with RCC, and both cheeses were better scored than the cheese made with CR.

L8 ANSWER 23 OF 60 CABA COPYRIGHT 2003 CABI

ACCESSION NUMBER: 1999:56331 CABA

DOCUMENT NUMBER: 990401743

TITLE: Hydrolysis of porcine beta -casein by bovine plasmin and bovine chymosin

AUTHOR: Gallagher, D. P.; Singh, T. K.; Mulvihill, D. M.

CORPORATE SOURCE: Department of Food Chemistry, University College, Cork, Irish Republic.

SOURCE: Zeitschrift fur Lebensmittel-Untersuchung und -Forschung. A, Food Research and Technology, (1999) Vol. 208, No. 2, pp. 83-89. 13 ref.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The action of **recombinant** bovine **chymosin** and bovine plasmin on **porcine** and bovine beta -casein was studied. Bulk milk collected from less than or equal to 4 sows between 8 and 25 days post partum was used. Bovine plasmin rapidly hydrolysed **porcine** beta -casein at Lys106-Arg107, Lys49-Ile50 and Lys168-Val169 to yield gamma -caseins. Several peptides that had the same N-terminal amino acid sequence as **porcine** beta -casein were also **produced**. Plasmin hydrolysis sites determined by separating the pH 4.6-soluble peptides formed on hydrolysis were Lys33-Leu34, Lys49-Ile50, Lys95-Asp96, Lys98-Ala99, Lys106-Arg107, Lys108-Gly109 and Lys168-Val169. **Porcine** beta -casein, like bovine beta -casein, was hydrolysed by bovine **chymosin** into 3 electrophoretic bands designated as **porcine** beta -I-, beta -II- and beta -III-casein, all of which had the N-terminal sequence of **porcine** beta -casein. Two initial pH 4.6-soluble peptides formed on hydrolysis of **porcine** beta -casein by **chymosin** had N-terminal amino acid sequences commencing at **porcine** beta -casein amino acid 197, indicating that **porcine** beta -I-casein corresponded to fragment 1-196, while the sequences of 2 other small peptides commenced at amino acids 1 and 207. The C-terminal cleavage site(s) leading to formation of

porcine beta -II and beta -III casein were not determined.

L8 ANSWER 28 OF 60 CABA COPYRIGHT 2003 CABI
ACCESSION NUMBER: 96:30560 CABA
DOCUMENT NUMBER: 960400556
TITLE: Recombinant chymosin
AUTHOR: Mohanty, A. K.; Sunita Grover; Batish, V. K.; Mukhopadhyay, U. K.; Grover, S.
CORPORATE SOURCE: Molecular Biology Unit, National Dairy Research Institute, Karnal 132 001, Haryana, India.
SOURCE: Indian Dairyman, (1995) Vol. 47, No. 12, pp. 29-33. 10 ref.
ISSN: 0019-4603
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Research on the use of **recombinant** DNA technology to **produce** a bovine **chymosin** suitable for use in the manufacture of **buffalo** milk cheese, and progress that has been made towards commercial **production** of a **recombinant** DNA-derived **chymosin**, are discussed.

L8 ANSWER 31 OF 60 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:353591 CAPLUS
DOCUMENT NUMBER: 136:365764
TITLE: Recombinant production of non-bovine chymosin and use in milk coagulation for cheese manufacturing
INVENTOR(S): Kappeler, Stefan; Farah, Zakaria; Budtz, Peter; Rahbek-Nielsen, Henrik; Van Den Brink, Johannes Maarten
PATENT ASSIGNEE(S): Chr. Hansen A/S, Den.; Eidgenoessische Technische Hochschule Zuerich
SOURCE: PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002036752	A2	20020510	WO 2001-DK731	20011106
WO 2002036752	A3	20020926		
W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002013838	A5	20020515	AU 2002-13838	20011106

PRIORITY APPLN. INFO.: US 2000-705917 A 20001106
WO 2001-DK731 W 20011106

AB A method of **recombinantly producing** a non-bovine pre-**prochymosin**, **prochymosin** or **chymosin** derived from ruminant species including deer species, **buffalo** species, antelope species, giraffe species, ovine species and **caprine** species; Camelidae species such as Camelus dromedarius; **porcine** species; or **Equidae** species, and use in milk coagulation for cheese manufg., is disclosed. The recombinant enzymes are used in milk coagulating compns. in cheese manufg. based on cow's milk and milk from any animal species which are used in cheese manufg. including camel's milk. In addn. to the potential of significantly improved chymosin prodn.

cost-effectiveness, the provision of such non-bovine chymosin species at a com. level makes available chymosin products that are not only capable of clotting cow's milk at least as effectively as chymosin of bovine origin, but which, addnl., are capable of more effectively clotting milk from other animal species including milk of the source species. Specifically, the invention has made it possible to provide, for the first time, camel chymosin in sufficient quantities to render an industrial, cost-effective and high quality prodn. of cheese based on camel's milk possible, which, due to the scarcity of camel calf stomach material, has not hitherto been possible. Addnl., it has been discovered that camel chymosin has a high clotting activity on cow 's milk, which renders the enzyme useful for manufg. cheese based on cow's milk. It was a surprising finding of the present inventors that camel chymosin has a specific K-casein hydrolyzing activity (Phe-Met 105/106), i.e. C/P ratio as defined herein below, which is superior to that of bovine chymosin. A higher C/P ratio implies generally that the loss of protein during cheese manufg. due to nonspecific protein degrdn. is reduced, i.e. the yield of cheese is improved, and that the development of bitter taste in the cheese during maturation is reduced.

L8 ANSWER 40 OF 60 FSTA COPYRIGHT 2003 IFIS
ACCESSION NUMBER: 1999(04):P0496 FSTA
TITLE: Proteolytic activities of chymosin and porcine pepsin on buffalo, cow, and goat whole and .beta.-casein fractions.
AUTHOR: Awad, S.; Qiao-Qian Luthi-Peng; Puhan, Z.
CORPORATE SOURCE: Correspondence (Reprint) address, Z. Puhan, Lab. of Dairy Sci., Inst. of Food Sci., Swiss Fed. Inst. of Tech., CH-8092 Zurich, Switzerland. Tel. +41 1 632 5368. Fax +41 1 632 1156. E-mail puhan(a)ilw.agrl.ethz.ch
SOURCE: Journal of Agricultural and Food Chemistry, (1998) 46 (12) 4997-5007, 30 ref.
ISSN: 0021-8561
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Proteolytic specificity and activity of a **recombinant chymosin** (Maxiren) and **porcine** pepsin on **buffalo**, cow [cattle], and **goat** whole casein (CN) and .beta.-CN were studied by analysing degradation **products**. Results suggest that hydrolysis of whole casein of **buffaloes** and **goats** by **chymosin** was similar to that of cow casein resulting in .alpha..sub.s.sub.1-I and .beta.-I, -II and -III as degradation fragments of .alpha..sub.s.sub.1- and .beta.-CN. The exception was **goat** .beta.-I which was resistant to further hydrolysis by **chymosin** but not to **porcine** pepsin at pH 5.4-6.2. Increasing NaCl concn. to .gtoreq.5% reduced proteolysis of .beta.-CN in all 3 species, but not that of .alpha..sub.s.sub.1-CN. Fragments of .beta.-I, -II and -III **produced** from .beta.-CN of the 3 species gave identical results with PAGE. .alpha..sub.s.sub.1-I and its degradation fragments had in all 3 species, regardless of different electrophoretic mobilities on PAGE, the same sequence of appearance. Results also indicated that **chymosin** and **porcine** pepsin attacked the same regions in **buffalo** and **goat** caseins as for cow .alpha..sub.s.sub.1- and .beta.-CN.

L8 ANSWER 47 OF 60 FROSTI COPYRIGHT 2003 LFRA
ACCESSION NUMBER: 486849 FROSTI
TITLE: Chymosin and phytase. Made by genetic engineering.. (No. 10 in a series of articles to promote a better understanding of the use of genetic engineering.)
AUTHOR: Anon.
SOURCE: Journal of Biotechnology, 1999, (January 8), 67 (1), 77-80 (0 ref.)
ISSN: 0168-1656
DOCUMENT TYPE: Journal

LANGUAGE: English
SUMMARY LANGUAGE: English

AB Rennet, which is traditionally obtained from calves' stomachs, is used in cheesemaking to coagulate milk proteins. Gist-brocade has **produced** rennet by **cloning** and expressing the DNA coding for calf stomach **chymosin** in Kluyveromyces lactis. The genetically modified K. lactis **produces prochymosin**, which is then converted by acid to **chymosin**. The **chymosin**, brand name Maxiren, has a higher purity than calves' rennet and has been commercially **produced** since 1988. Another successful genetically engineered **product** is phytase enzyme (brand name Natuphos). This enzyme, which is **produced** from genetically modified Aspergillus niger, is added to chicken and **pig** feed to release the phosphorus (essential for animal growth) from phytin in the feed. By adding Natuphos, the phosphorus level in the feed can be reduced.

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(FILE 'HOME' ENTERED AT 12:57:09 ON 31 MAR 2003)

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 12:57:21 ON 31 MAR 2003

SEA (PROCHYMOS? OR CHYMOS?) AND (CAME? OR GOAT? OR SHEEP? OR LA

45	FILE AGRICOLA
2	FILE ANABSTR
3	FILE AQUASCI
23	FILE BIOBUSINESS
1	FILE BIOCOMMERCE
189	FILE BIOSIS
31	FILE BIOTECHABS
31	FILE BIOTECHDS
40	FILE BIOTECHNO
281	FILE CABA
4	FILE CANCERLIT
266	FILE CAPLUS
4	FILE CEABA-VTB
1	FILE CONFSCI
7	FILE DDFB
18	FILE DDFU
8	FILE DGENE
7	FILE DRUGB
25	FILE DRUGU
1	FILE DRUGUPDATES
76	FILE EMBASE
22	FILE ESBIOBASE
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157	FILE FSTA
47	FILE GENBANK
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15	FILE JICST-EPLUS
34	FILE LIFESCI
149	FILE MEDLINE
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56	FILE PASCAL
2	FILE PHIN
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134	FILE SCISEARCH

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              33   FILE TOXCENTER
            1272   FILE USPATFULL
              25   FILE USPAT2
               3   FILE VETB
               5   FILE VETU
              18   FILE WPIDS
              18   FILE WPINDEX
              15   FILE NLDB
L1              QUE (PROCHYMOS? OR CHYMOS?) AND (CAME? OR GOAT? OR SHEEP? OR LA
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     FILE 'USPATFULL, CABA, CAPLUS, BIOSIS, FSTA, MEDLINE, SCISEARCH, EMBASE,
     FROSTI, PASCAL, GENBANK, AGRICOLA, BIOTECHNO, LIFESCI, TOXCENTER,
     BIOTECHDS, DRUGU, USPAT2, BIOBUSINESS' ENTERED AT 13:01:15 ON 31 MAR 2003
L2         15077 S (PROCHYMOS? OR CHYMOS?)
L3            45 S L2 (S) CAMEL?
L4            26 DUP REM L3 (19 DUPLICATES REMOVED)
L5          1293 S L2 (S) (LAMB? OR SHEEP? OR GOAT? OR CAPRIN? OR PORCIN? OR PI
L6           323 S L5 (S) (ISOLAT? OR CLON? OR RECOMBIN?)
L7           190 DUP REM L6 (133 DUPLICATES REMOVED)
L8            60 S L7 (S) PRODUC?

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Search Results -

Terms	Documents
l1 and endoH$3	1

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L5

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DATE: Monday, March 31, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=OR			
L5	l1 and endoH$3	1	L5
L4	endoH$3 and (recombin$3 or clon$3 or isolat$3) and L1	1	L4
L3	glucoamyla$4 and (recombin$3 or clon$3 or isolat$3) and L1	20	L3
L2	(recombin$3 or clon$3 or isolat$3) and L1	72	L2
L1	(chymosi$3 or prochymos$3) same (porci$3 or pig$3 or goat$3 or sheep$3 or lamb$3 or buffa$3)	79	L1

END OF SEARCH HISTORY

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Search Results - Record(s) 11 through 20 of 20 returned.

11. Document ID: US 6025185 A

L3: Entry 11 of 20 File: USPT Feb 15, 2000

US-PAT-NO: 6025185
DOCUMENT-IDENTIFIER: US 6025185 A

TITLE: Fungus wherein the areA gene has been modified and an areA gene from Aspergillus oryzae

DATE-ISSUED: February 15, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Christensen; Tove	Lyngby			DK
Hynes; Michael J.	Melbourne			AU

US-CL-CURRENT: 435/254.11; 435/253.2, 435/325, 435/484, 435/6, 435/69.1, 435/91.4, 536/23.74

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

12. Document ID: US 6017734 A

L3: Entry 12 of 20 File: USPT Jan 25, 2000

US-PAT-NO: 6017734
DOCUMENT-IDENTIFIER: US 6017734 A

TITLE: Unique nucleotide and amino acid sequence and uses thereof

DATE-ISSUED: January 25, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Summers; Max D.	Bryan	TX		
Braunagel; Sharon C.	Bryan	TX		
Hong; Tao	Bryan	TX		

US-CL-CURRENT: 435/69.7; 435/320.1, 435/348, 435/365, 435/91.4, 536/23.1, 536/23.72, 536/24.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

13. Document ID: US 6004785 A

L3: Entry 13 of 20 File: USPT Dec 21, 1999

US-PAT-NO: 6004785
DOCUMENT-IDENTIFIER: US 6004785 A

TITLE: Heterologous polypeptides expressed in filamentous fungi, processes for making same, and vectors for making same

DATE-ISSUED: December 21, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Berka; Randy Michael	San Mateo	CA		
Cullen; Daniel	Madison	WI		
Gray; Gregory Lawrence	South San Francisco	CA		
Hayenga; Kirk James	Burlingame	CA		
Lawlis; Virgil Bryan	San Mateo	CA		

US-CL-CURRENT: 435/484; 435/183, 435/254.11, 435/254.3, 435/254.6, 435/471, 435/69.1, 536/23.1, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

14. Document ID: US 5968774 A

L3: Entry 14 of 20 File: USPT Oct 19, 1999

US-PAT-NO: 5968774
DOCUMENT-IDENTIFIER: US 5968774 A

TITLE: Host cell expressing reduced levels of a metalloprotease and methods using the host cell in protein production

DATE-ISSUED: October 19, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lehmbeck; Jan	Veks.o slashed.			DK

US-CL-CURRENT: 435/69.1; 435/189, 435/198, 435/212, 435/484, 435/69.4, 435/69.51, 435/69.6

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

15. Document ID: US 5861280 A

L3: Entry 15 of 20 File: USPT Jan 19, 1999

US-PAT-NO: 5861280
DOCUMENT-IDENTIFIER: US 5861280 A

TITLE: Host cell expressing reduced levels of a metalloprotease and methods using the host cell in protein production

DATE-ISSUED: January 19, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lehmbeck; Jan	Veks.o slashed.			DK

US-CL-CURRENT: 435/69.1; 435/254.11

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 16. Document ID: US 5679543 A

L3: Entry 16 of 20 File: USPT Oct 21, 1997

US-PAT-NO: 5679543
DOCUMENT-IDENTIFIER: US 5679543 A

TITLE: DNA sequences, vectors and fusion polypeptides to increase secretion of desired polypeptides from filamentous fungi

DATE-ISSUED: October 21, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lawlis; Virgil Bryan	San Mateo	CA		

US-CL-CURRENT: 435/69.1; 435/205, 435/254.11, 435/320.1, 435/484, 435/69.8, 435/71.1, 530/350, 536/23.1, 536/23.4, 536/24.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 17. Document ID: US 5578463 A

L3: Entry 17 of 20 File: USPT Nov 26, 1996

US-PAT-NO: 5578463
DOCUMENT-IDENTIFIER: US 5578463 A

TITLE: Heterologous polypeptides expressed in filamentous fungi, processes for making same, and vectors for making same

DATE-ISSUED: November 26, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Berka; Randy M.	San Mateo	CA		
Cullen; Daniel	Madison	WI		
Gray; Gregory L.	South San Francisco	CA		
Hayenga; Kirk J.	Burlingame	CA		
Lawlis; Virgil B.	San Mateo	CA		

US-CL-CURRENT: 435/69.1; 435/183, 435/205, 435/254.3, 435/320.1, 435/69.7, 435/69.8, 536/23.2, 536/23.74, 536/24.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

18. Document ID: US 5364770 A

L3: Entry 18 of 20 File: USPT Nov 15, 1994

US-PAT-NO: 5364770
DOCUMENT-IDENTIFIER: US 5364770 A

TITLE: Heterologous polypeptides expressed in aspergillus

DATE-ISSUED: November 15, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Berka; Randy M.	San Mateo	CA		
Cullen; Daniel	Madison	WI		
Gray; Gregory L.	South San Francisco	CA		
Hayenga; Kirk J.	Burlingame	CA		
Lawlis; Virgil B.	San Mateo	CA		

US-CL-CURRENT: 435/69.1; 435/183, 435/205, 435/254.3, 435/320.1, 435/69.7, 435/69.8, 536/23.1, 536/23.2, 536/23.74, 536/24.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

19. Document ID: US 5139943 A

L3: Entry 19 of 20 File: USPT Aug 18, 1992

US-PAT-NO: 5139943
DOCUMENT-IDENTIFIER: US 5139943 A

TITLE: Processes for the recovery of microbially produced chymosin

DATE-ISSUED: August 18, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Heinsohn; Henry G.	Pacifica	CA		
Lorch; Jeffrey D.	San Mateo	CA		
Hayenga; Kirk J.	San Mateo	CA		
Arnold; Raymond E.	San Francisco	CA		

US-CL-CURRENT: 435/226; 426/36, 426/42, 435/815, 435/816

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

20. Document ID: US 20020160445 A1 WO 200264759 A2

L3: Entry 20 of 20 File: DWPI Oct 31, 2002

DERWENT-ACC-NO: 2002-636629
DERWENT-WEEK: 200274
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TITLE: Providing a polypeptide preparation with a reduced content of undesired enzymatic side activities, by subjecting medium with a desired polypeptide with undesired enzymatic side activity to a low pH

INVENTOR: HARBOE, M; HARBOE, M K

PRIORITY-DATA: 2001US-0779560 (February 9, 2001)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20020160445 A1	October 31, 2002		000	C12N009/99
WO 200264759 A2	August 22, 2002	E	022	C12N009/00

INT-CL (IPC): C12 N 9/00; C12 N 9/99; C12 P 21/02

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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Terms	Documents
glucoamyla$4 and (recombin$3 or clon$3 or isolat$3) and L1	20

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